

In the claims

1. (currently amended) A system comprising:
  - an interconnect to carry direct current (DC), the interconnect having a first conductor and a second conductor;
  - an electronic device connectable to the interconnect to receive DC and having a communication circuit to transmit signals over the interconnect; and,
  - a power supply connectable to the interconnect to provide the DC to the electronic device and having a decoder circuit to decode the signals received over the interconnect from the electronic device, where the decoder circuit is part of the power supply,
    - wherein the decoder circuit is one of:
      - a first decoder circuit comprising:
        - a first operational amplifier having a positive input, a negative input, and an output, the positive input connected to the second conductor;
        - a first capacitor and a first resistor connected in series between the first conductor and the negative input of the first operational amplifier;
        - a second capacitor and a second resistor connected in parallel between the negative input and the output of the first operational amplifier;
      - a second decoder circuit comprising:
        - a first inverter;
        - a third capacitor connected in series between the first conductor and the first inverter;
      - a third decoder circuit comprising:
        - a second operational amplifier having a positive input, a negative input, and an output, the output connected to the second conductor;
        - a diode connected between the output of the second operational amplifier

and the negative input of the second operational amplifier;

\_\_\_\_\_ a third resistor connected between the second conductor and the negative input of the second operational amplifier;

\_\_\_\_\_ a fourth resistor connected between the first conductor and the second conductor;

\_\_\_\_\_ a fourth capacitor connected between the first conductor and the positive input of the second operational amplifier;

\_\_\_\_\_ a second inverter connected to the second operational amplifier.

2. (original) The system of claim 1, wherein the power supply further has a communication circuit to transmit additional communication signals over the interconnect, and the electronic device further has a decoder circuit to decode the additional communication signals received over the interconnect from the power supply.
3. (original) The system of claim 1, wherein the communication signals are one of high-frequency pulse-width modulation (PWM) signals and high-frequency square-wave signals.
4. (original) The system of claim 1, wherein the communication signals are high-frequency sinusoidal signals.
5. (original) The system of claim 1, wherein the communication signals are high-frequency triangular signals.
6. (original) The system of claim 1, wherein the electronic device comprises at least one isolating component to substantially isolate the communication signals from components of the electronic device other than the communication circuit.

7. (original) The system of claim 1, wherein the electronic device is an image-forming device.
8. (original) The system of claim 1, wherein the power supply comprises at least one isolating component to substantially isolate the communication signals from components of the power supply other than the decoder circuit.
9. (original) The system of claim 1, wherein the power supply and the interconnect are internal to the electronic device.
10. (original) The system of claim 1, wherein the power supply and the interconnect are external to the electronic device.
11. (currently amended) A system comprising:
  - a direct current (DC) interconnect having a first conductor and a second conductor;
  - an electronic device having a principal functionality and connectable to the interconnect to receive DC and comprising:
    - one or more components to provide the principal functionality of the electronic device;
    - a pulse-width modulation (PWM) communication circuit to transmit high-frequency PWM signals over the interconnect;
    - an inductive isolating component to substantially isolate the high-frequency PWM signals from the one or more components of the electronic device; and,
    - a power supply connectable to the interconnect to convert alternating current (AC) from a power source to DC for the electronic device and comprising:

one or more components to convert the AC to the DC according to one or more parameters;

a decoder circuit to decode the high-frequency PWM signals received over the interconnect from the electronic device into the one or more parameters;

an inductive isolating component to substantially isolate the high-frequency PWM signals from the one or more components of the power supply;

wherein the decoder circuit is one of:

a first decoder circuit comprising:

a first operational amplifier having a positive input, a negative input, and an output, the positive input connected to the second conductor;

a first capacitor and a first resistor connected in series between the first conductor and the negative input of the first operational amplifier;

a second capacitor and a second resistor connected in parallel between the negative input and the output of the first operational amplifier;

a second decoder circuit comprising:

a first inverter;

a third capacitor connected in series between the first conductor and the first inverter;

a third decoder circuit comprising:

a second operational amplifier having a positive input, a negative input, and an output, the output connected to the second conductor;

a diode connected between the output of the second operational amplifier and the negative input of the second operational amplifier;

a third resistor connected between the second conductor and the negative input of the second operational amplifier;

a fourth resistor connected between the first conductor and the second

conductor;

a fourth capacitor connected between the first conductor and the positive input of the second operational amplifier;

a second inverter connected to the second operational amplifier,

12. (original) The system of claim 11, wherein the power supply further comprises a PWM communication circuit to transmit additional high-frequency PWM signals over the interconnect, and the electronic device further comprises a decoder circuit to decode the additional high-frequency PWM signals received over the interconnect from the power supply.
13. (original) The system of claim 11, wherein the inductive isolating component of the electronic device and the inductive isolating component of the power supply each comprises an inductor.
14. (original) The system of claim 11, wherein the electronic device is an image-forming device.
- 15.-23. (cancelled)
24. (currently amended) A power supply comprising:  
a decoder circuit to decode high-frequency communication signals received an interconnect into one or more parameters, the interconnect having a first conductor and a second conductor;  
one or more components to convert alternating current (AC) from a power source to direct current (DC) for transmission over the interconnect according to the one or more parameters; and,

a high-frequency filter operatively coupled between the decoder circuit and the one or more components to attenuate transmission of high-frequency communication signals to the one or more components,

          wherein the decoder circuit is one of:

          a first decoder circuit comprising:

                  a first operational amplifier having a positive input, a negative input, and an output, the positive input connected to the second conductor;

                  a first capacitor and a first resistor connected in series between the first conductor and the negative input of the first operational amplifier;

                  a second capacitor and a second resistor connected in parallel between the negative input and the output of the first operational amplifier;

          a second decoder circuit comprising:

                  a first inverter;

                  a third capacitor connected in series between the first conductor and the first inverter;

          a third decoder circuit comprising:

                  a second operational amplifier having a positive input, a negative input, and an output, the output connected to the second conductor;

                  a diode connected between the output of the second operational amplifier and the negative input of the second operational amplifier;

                  a third resistor connected between the second conductor and the negative input of the second operational amplifier;

                  a fourth resistor connected between the first conductor and the second conductor;

                  a fourth capacitor connected between the first conductor and the positive

input of the second operational amplifier;

a second inverter connected to the second operational amplifier.

25. (original) The power supply of claim 24, further comprising a high-frequency communication circuit to transmit additional high-frequency communication signals over the interconnect.
26. (original) The power supply of claim 24, further comprising the interconnect.
27. (original) The power supply of claim 24, wherein the high-frequency filter comprises an inductor.
28. (original) The power supply of claim 24, wherein the high-frequency communication signals comprise one of: pulse-width modulation (PWM) signals, square-wave signals, sinusoidal signals, and triangle-wave signals.
- 29.-34. (cancelled)
35. (new) The system of claim 1, wherein the decoder circuit is the first decoder circuit.
36. (new) The system of claim 11, wherein the decoder circuit is the first decoder circuit.
37. (new) The power supply of claim 24, wherein the decoder circuit is the first decoder circuit.
38. (new) The system of claim 1, wherein the decoder circuit is the second decoder circuit.

- 39. (new) The system of claim 11, wherein the decoder circuit is the second decoder circuit.
- 40. (new) The power supply of claim 24, wherein the decoder circuit is the second decoder circuit.
- 41. (new) The system of claim 1, wherein the decoder circuit is the third decoder circuit.
- 42. (new) The system of claim 11, wherein the decoder circuit is the third decoder circuit.
- 43. (new) The power supply of claim 24, wherein the decoder circuit is the third decoder circuit.